

CLAIMS

What is claimed is:

1. A process comprising:
 - (a) providing a protecting group-substituted tocopherol compound;
 - (b) purifying the protecting group-substituted tocopherol compound;and
 - (c) solvolyzing the purified compound to form free tocopherol.
2. The process according to claim 1, wherein the solvolyzing is carried out under an inert atmosphere.
3. The process according to claim 2, wherein the inert atmosphere comprises nitrogen.
4. The process according to claim 1, wherein the protecting group-substituted tocopherol compound comprises an ester.
5. The process according to claim 4, wherein the ester is selected from the group consisting of an acetate, a succinate, a phosphate, a phosphinate, a sulfonate and a carbonate.
6. The process according to claim 4, wherein the ester comprises a compound selected from the group consisting of an acetate and a succinate.
7. The process according to claim 4, wherein the ester comprises an acetate.
8. The process according to claim 1, wherein the tocopherol compound comprises α -tocopherol.

9. The process according to claim 8, wherein the α -tocopherol is present in an amount of at least about 80% by weight based on the total tocopherol content.

10. The process according to claim 1, wherein the tocopherol compound comprises *d*- α -tocopherol.

11. The process according to claim 10, wherein the *d*- α -tocopherol is present in an amount of at least about 80% by weight based on the total tocopherol content.

12. The process according to claim 1, wherein the tocopherol compound comprises a natural-source tocopherol.

13. The process according to claim 12, wherein the protecting group-substituted tocopherol compound comprises an ester.

14. The process according to claim 13, wherein the ester comprises a compound selected from the group consisting of an acetate and a succinate.

15. The process according to claim 13, wherein the ester comprises an acetate.

16. The process according to claim 1, wherein purifying the protecting group-substituted tocopherol compound comprises crystallizing the compound from a solvent and collecting the crystallized compound.

17. The process according to claim 16, wherein collecting the crystallized compound comprises filtration.

18. The process according to claim 16, wherein the solvent comprises a lower alcohol.
19. The process according to claim 16, wherein the solvent comprises isopropanol.
20. The process according to claim 16, wherein crystallizing the compound is carried out at a temperature below room temperature and above the freezing point of the solvent.
21. The process according to claim 16, wherein the solvent comprises isopropanol and crystallizing the compound is carried out at a temperature of from about 10°C to about -50°C.
22. The process according to claim 16, further comprising re-mixing the crystallized compound with the solvent and repeating the crystallizing and the collecting at least once in sequential order.
23. The process according to claim 1, wherein the protecting group-substituted tocopherol compound comprises an ester, and wherein solvolyzing the ester comprises a reaction selected from the group consisting of acid-catalyzed hydrolysis and base-promoted hydrolysis.
24. The process according to claim 1, wherein the protecting group-substituted tocopherol compound comprises an ester, and wherein solvolyzing the ester comprises base-promoted hydrolysis.
25. The process according to claim 24, wherein solvolyzing the ester comprises reacting the ester with an aqueous solution of a basic compound

selected from the group consisting of alkali metal hydroxides, alkaline earth metal hydroxide, ammonium hydroxide, and metal hydrides.

26. The process according to claim 25, wherein the basic compound comprises an alkali metal hydroxide.

27. The process according to claim 25, wherein the basic compound comprises sodium hydroxide.

28. The process according to claim 24, wherein the hydrolysis is carried out in the presence of an alcohol solvent.

29. The process according to claim 28, wherein the alcohol solvent comprises isopropanol.

30. The process according to claim 24, wherein the hydrolysis is carried out in the presence of a reducing agent.

31. The process according to claim 30, wherein the reducing agent comprises sodium borohydride.

32. The process according to claim 15, wherein the hydrolysis is carried out under reflux conditions.

33. A process comprising:
(a) providing an acetate of a natural-source tocopherol compound;
(b) crystallizing the acetate of the tocopherol compound from a solvent comprising isopropanol and collecting a purified acetate of the tocopherol compound; and

(c) reacting the purified acetate with an aqueous solution of sodium hydroxide in isopropanol under a nitrogen atmosphere at reflux conditions to form free tocopherol, in the presence of a reducing agent comprising sodium borohydride.

34. A process for purifying a tocopherol, said process comprising:
(a) providing a starting material comprising a tocopherol compound;
(b) reacting the starting material with a protecting group to form a reaction mixture comprising a protecting group-substituted tocopherol compound;
(c) separating the protecting group-substituted tocopherol compound from the reaction mixture to form a purified protecting group-substituted tocopherol compound; and
(d) solvolyzing the purified compound to form a free tocopherol.

35. A process comprising:
(a) providing an ester of a tocopherol compound,
(b) reacting the ester with an aqueous solution of a basic compound in an alcohol solvent under an inert atmosphere to form free tocopherol, in the presence of a reducing agent.

36. A composition comprising a natural tocopherol compound, wherein the composition has a color-stability such that the composition has a Gardner color value of less than about 6 after 24 hours at a temperature of up to about 60°C.

37. A composition comprising a color-stable, natural tocopherol compound, wherein the composition has an *l*-tocopherol content less than about 0.75% and a total non- α -tocopherol content of less than about 2%.

38. A composition comprising a color-stable, natural tocopherol compound prepared by a process according to claim 1.

39. A composition comprising a color-stable, natural tocopherol compound prepared by a process according to claim 34.

40. A composition comprising a color-stable, natural tocopherol compound prepared by a process according to claim 35.